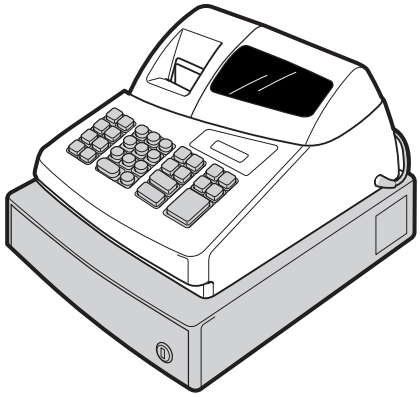
SHARP SERVICE MANUAL

CODE : 00ZXEA102USME



ELECTRONIC CASH REGISTER

MODEL XE-A102

SRV KEY : Not necessary
PRINTER : M-31
(U and V version)

CONTENTS

CHAPTER 1. SPECIFICATIONS 1

CHAPTER 2. OPTIONS 4

CHAPTER 3. MASTER RESET 4

CHAPTER 4. HARDWARE DESCRIPTION 5

CHAPTER 5. TEST FUNCTION 8

CHAPTER 6. SERVICE PRECAUTION 10

CHAPTER 7. CIRCUIT DIAGRAM AND PWB LAYOUT 11

PARTS GUIDE

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

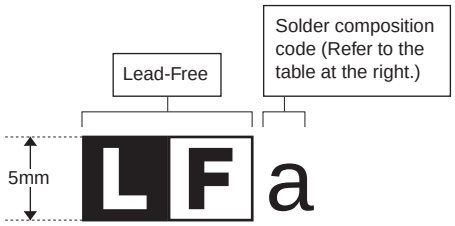
SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder.
The alphabet following the LF mark shows the kind of lead-free solder.

Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

(1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread. Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommendable.

(2) NOTE FOR SOLDERING WORK

Since the melting point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

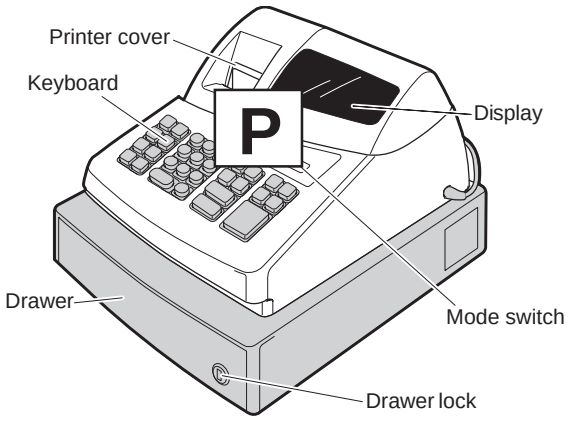
CAUTIONS

THERE IS A RISK OF EXPLOSION IF THE BATTERY
IS REPLACED BY AN INCORRECT TYPE.
PROPERLY DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS.

CHAPTER 1. SPECIFICATIONS

1. APPEARANCE

Front view



2. RATING

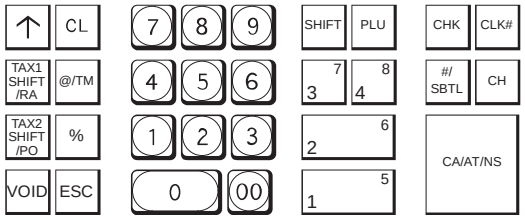
	U	V
Weight	Approx 5.0kg	
External dimension (Including the drawer)	330 (W) x 363 (D) x 234 (H) mm 13 (W) x 14.3 (D) x 9.2 (H) inches	
Power source	AC 120V (10%) 60Hz	AC 220-230V (±10%) 50/10Hz AC 230-240V (±10%) 50Hz
Power consumption	Stand-by 4W Operating 12.5W	Stand-by 6.3W Operating 13W
Working temperature	0~40°C (32 to 104°F)	

3. KEYBOARD

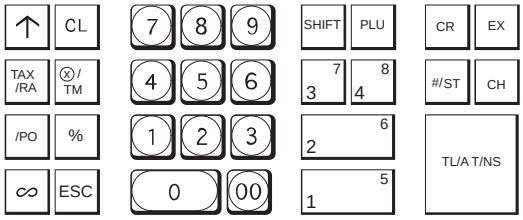
1) KEYBOARD LAYOUT

Type	Normal keyboard
Key position	STD/MAX 30
Key pitch	19 (W) x 19 (H) mm
Key layout	Fixed type

[U version]



[V version]



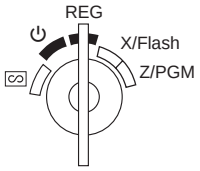
2) KEY LIST

Keytop	Description
0-9,00	Numeric keys
CL	Clear key
@/TM	Multiplication & Time display key
↑	Paper feed key
Tax 1 Shift/RA	Tax 1 shift and Received on account key
Tax2 Shift/PO	Tax 2 shift and Paid out key
%	Percent key
ESC	Error escape key
VOID	Void key
CLK#	Clerk code Entry key
PLU	PLU code entry key
SHIFT	Department shift key
#/SBTL	Non-add code & Tax Included subtotal key
CHK	Check key
CH	Charge key
CA/AT/NS	Cash Sale/ Amount Tender and No Sale key
Dept1-8	Department key

4. MODE SWITCH

1) LAYOUT

• Rotary SW

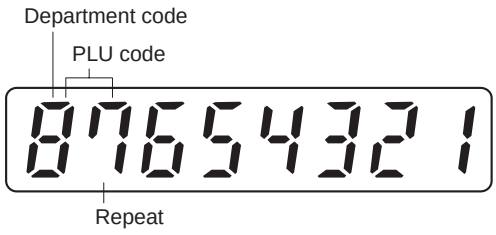


5. DISPLAY

1) OPERATOR DISPLAY

Display device:	LED numeric display
Number of lines:	1 line
Number of positions:	8 positions numeric display (U) 9 positions numeric display (V)
Color of display:	Yellow Green
Character size:	Numeric 14.20 (H) x 7.80 (W) mm

(Layout)



[V version]

2) DISPLAY CONTENTS

Departments/PLU Code:

The department code or PLU code entered appears on the left. For example, if the key for department 1 is pressed, "1" would appear in the extreme left position.

Repeat:

Indicates the number of times the same department key is pressed. If an entry is repeated more than ten times, only the first digit is displayed (12 displays as "2").

(E) Error:

This symbol appears, accompanied by a warning beep, when an error is made. If this occurs during a transaction because of an excessive digit entry, simply press [CL] and re-enter correctly.

(P) Program:

This symbol remains on the display when the cash register is being programmed in the Z/PGM mode.

(F) Finalization:

This symbol appears when a transaction is finalized by pressing [CA/AT/NS], [CH] or [CHK].

(o) Subtotal:

This symbol appears when [#/SBTL] is pressed and the cash register computes the subtotal and also when the amount tendered is less than the total sale amount.

(C) Change:

This symbol appears whenever the change due amount is displayed.

(L) Low battery:

This symbol appears when the power of the installed batteries is low or you need to replace the batteries with new ones.
(see the "Maintenance" section for explanation.)

(▙) No battery:

This symbol appears when no batteries are installed. (see "Maintenance" and "Getting Started" sections for explanation.)

In addition, the following appear when appropriate:

- The minus sign (-) can appear in positions 2 to 8.
- The decimal point appears in positions 1 to 3.
- When entry of the secret code is necessary, "---" appears in positions 1 to 4.

6. PRINTER

1) PRINTER

- Model name : M-31
- No. of stations : 1
- Printing system : Print wheel selective type
- Printing capacity : max. 13 characters
- Character size : 1.6mm (W) x 2.8mm (H)
- Print pitch : Column distance 2.1mm (numeric to numeric), 2.6mm (numeric to symbol)
  Row distance 4.6mm
- Print speed : Approximate 1.4 lines/s (6 digits/line)
- Paper feed speed : Approximate 4.3 lines/s
- Reliability : MCBF 0.3 million lines

2) PAPER

- Paper roll dimension : 57.5mm ± 0.5mm
- Paper quality : Bond paper (paper thickness: 0.06 to 0.085mm paper weight: 47 to 64g/m^2)

3) INKING

Ink supply system	: Ink roll
From	: Roller
Specification	: Material - rubber
Ink roll type	: 1 million characters
Print color	: purple

4) LOGO STAMP (NONE)

5) CUTTER

- Manual cutter

6) PRINTING WHEEL LAYOUT

[U version]

	1	2	3	4	5	6	7	8	9	10	11	12	13
0	0	0	0	0	0	0	0	0	0	0	0	0	X
1	1	1	1	1	1	1	1	1	1	1	1	1	Z
2	2	2	2	2	2	2	2	2	2	2	2	2	RA
3	3	3	3	3	3	3	3	3	3	3	3	3	PO
4	4	4	4	4	4	4	4	4	4	4	4	4	VD
5	5	5	5	5	5	5	5	5	5	5	5	5	%
6	6	6	6	6	6	6	6	6	6	6	6	6	@
7	7	7	7	7	7	7	7	7	7	7	7	7	ST
8	8	8	8	8	8	8	8	8	8	8	8	8	TX
9	9	9	9	9	9	9	9	9	9	9	9	9	CA
10													
11	–	–	–	–	–	–	–	–	–	–	–	–	CH
12	•	•	•	•	•	•	•	•	•	•	•	•	CK
13	#	#	#	#	#	#	#	#	#	#	#	#	CG

[V version]

	1	2	3	4	5	6	7	8	9	10	11	12	13
0	0	0	0	0	0	0	0	0	0	0	0	0	X
1	1	1	1	1	1	1	1	1	1	1	1	1	Z
2	2	2	2	2	2	2	2	2	2	2	2	2	RA
3	3	3	3	3	3	3	3	3	3	3	3	3	PO
4	4	4	4	4	4	4	4	4	4	4	4	4	VD
5	5	5	5	5	5	5	5	5	5	5	5	5	%
6	6	6	6	6	6	6	6	6	6	6	6	6	@
7	7	7	7	7	7	7	7	7	7	7	7	7	ST
8	8	8	8	8	8	8	8	8	8	8	8	8	TX
9	9	9	9	9	9	9	9	9	9	9	9	9	CA
10													
11	–	–	–	–	–	–	–	–	–	–	–	–	CH
12	•	•	•	•	•	•	•	•	•	•	•	•	CK
13	€	€	€	€	€	€	€	€	€	€	€	€	CG

7. DRAWER

[OUTLINE]

- Standard equipment : Yes (1)
- Max. number of drawers : 1
- The drawer consists of :
  (1) Drawer box (outer case) and drawer
  (2) Money case
  (3) Coin case
  (4) Lock (attached to the drawer)

[SPECIFICATION]

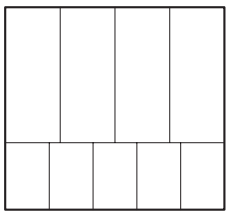
1) DRAWER BOX AND DRAWER

Material	Plastic
Bell	–
Release lever	Standard equipment: situated at the bottom
Drawer open sensor	–

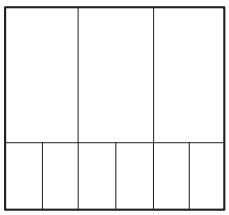
2) MONEY CASE

Separation from the drawer	Disallowed
Separation of the bill compartments from the coin	Allowed
compartments	–
Bill separator	–
Number of compartments	4B/5C (U) 3B/5C (V)

Layout:



4B/5C (u)



3B/6C (v)

3) LOCK (LOCK KEY : LKGIM7331BHZZ)

- Location of the lock: Front
- Method of locking and unlocking:
- To lock, insert the drawer lock key into the lock and turn it 90 degrees counter clockwise. To unlock, insert the drawer lock key and turn it 90 degrees clockwise.
- Key No: SK1-1

8. BATTERY

1) MEMORY BACK UP BATTERY

For memory back up, the dry battery ULM-3 (3) are needed.

1. Memory holding time:
   Approx. 1 year after New dry batteries are installed.
2. Battery exchange method:
   When the low battery symbol "L" lights up, replace the batteries (3 AA) replaced by the following method;
   1) Power on the ECR.
   2) Mode switch turn to "REG" mode.
   3) Remove the OLD dry batteries (3 pieces).
   4) The nobattery symbol "L" light up.
   5) Insert the NEW dry batteries (3 pieces).
   6) Confirm the low battery symbol "L" and nobattery symbol "L" is off.

2) LOW BATTERY

Low battery indication will appear on the left side of display when the battery voltage is low.

CASE 1: When sitting idle or after completion of transaction.The machine can indicate the low battery condition (Always)

CASE 2: Low battery indication will not appear during key operations, but will appear after power up of the cash register.

[Display sample]

" 0.00 " : Battery is OK.

"L 0.00" : Low battery (You have to change the batteries.)

After finalization

"F 12.34": Battery is OK.

"L 12.34": Low battery ("L" indicate instead of "F".)

3) NO BATTERY

If the user forgets to replace the battery and the battery voltage falls below a certain level, or if a power failure occurs with no batteries installed, the memory contents cannot be retained. The CPU judges it as no battery and performs the master reset. In this case, all the settings and registrations are cleared. If, however, the power is continuously supplied to the AC cord, the memory contents are retained.

Low battery : Batteries are installed, but the voltage is low. Memory back up can be done.

No battery : Batteries are not installed or the voltage is extremely low. The master reset is executed when a power failure occurs, when the batteries are not properly changed.

Low battery & No battery indication will appear at the most left position of display when the battery voltage is low.

CASE 1: When any numeric entry & item entry is not done or just after finalization. The machine can indicate the battery condition. (Always)

CASE 2: When numeric entry or item entry is done.
Battery condition does not appear.
Except when power is restored after power failure, the Low battery & No battery indication will appear on the display only when the battery voltage is low.
And the indication will disappear after any key entry.

[Display sample]

" 0.00" : Battery is OK.

"L 0.00" : Low battery

"L 0.00" : No battery

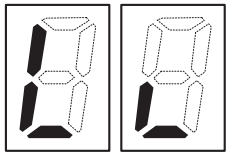
After finalization

"F 12.34": Battery is OK.

"L 12.34": Low battery ("L" indicate instead of "F".)

"L 12.34": No battery ("L" indicate instead of "F".)

L L



CHAPTER 2. OPTIONS

1. OPTIONS (NONE)

2. SERVICE OPTIONS (NONE)

3. SUPPLIES

NO	NAME	PARTS CODE	PRICE RANK	DESCRIPTION
1	ROLL PAPER	DPAPR1025CSZZ	AS	5 ROLLS/PACK
2	INK ROLLER	NRŌLR1022CC05	AF	

4 SPECIAL SERVICE TOOLS (NONE)

CHAPTER 3. MASTER RESET

Master reset:

Clears all the memory and initializes each preset parameter.

The master reset should be performed by using the following procedure.

1. Turn off the power (Power OFF). (See Note 1.)
2. Remove the memory back up battery from ECR.
3. Turn the mode switch to any position other than Power OFF.
4. Turn on the power (Power ON). (See Note 2.)

When the master rest is completed, the buzzer sounds three times.

5. Install the memory back up batteries back into the ECR.
   The master reset can also be accomplished in the following case. (See Note 3.)

Note 1) **Power OFF**:
Means disconnecting the AC power supply to the machine. (Specifically, unplugging the machine.)

Note 2) **Power ON**:
Means connecting the AC power to the machine. (Specifically, plugging in the machine.)

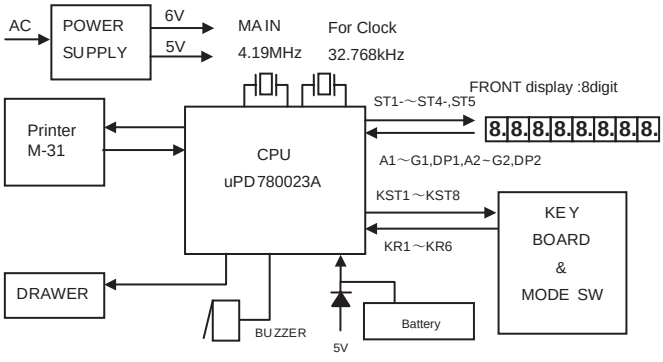
Note 3) In case a power failure occurs when the machine has no battery installed, the master reset operation is automatically performed after the power has been restored.

CHAPTER 4. HARDWARE DESCRIPTION

1. OUTLINE

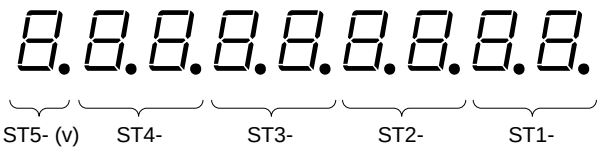
- CPU : uPD780023A (ROM 24KB, RAM 1024B)
- KEY BOARD : 30key including PF key
- MODE SW : 5position slide SW
- DISPLAY : 7seg.+DP x 8digit LED (YELLOW GREEN) FRONT only
- DRAWER : 1ch, no open sensor
- BUZZER : 1beep, piezo buzzer
- PRINTER : M-31(no EURO SYMBOL) (U)
  M-31V (V)

2. BLOCK DIAGRAM

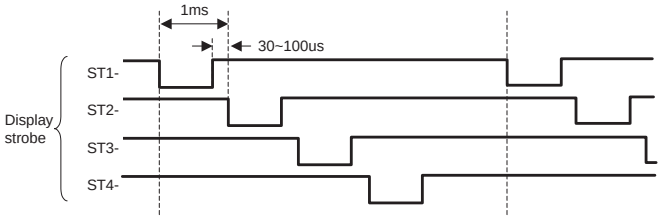


3. DISCRIPTION

1) DISPLAY



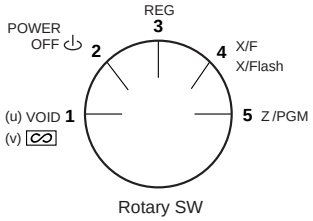
(Output Timing of STROBE signal)



2) KEYBOARD AND MODE SW

MODE SW, KEY MATRIX is follows.

∗Note: Although the XE-A102 has 30 keys, the keyboard circuit is actually 32 keys (+) the PF key.



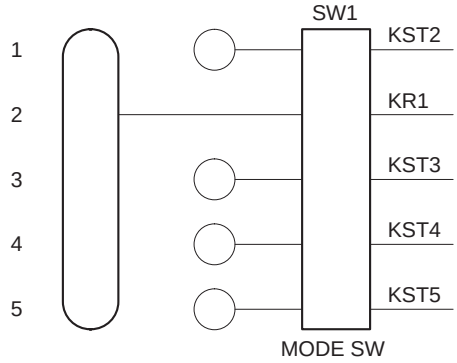
Rotary SW

↑	22
31	7
15	16
24	25

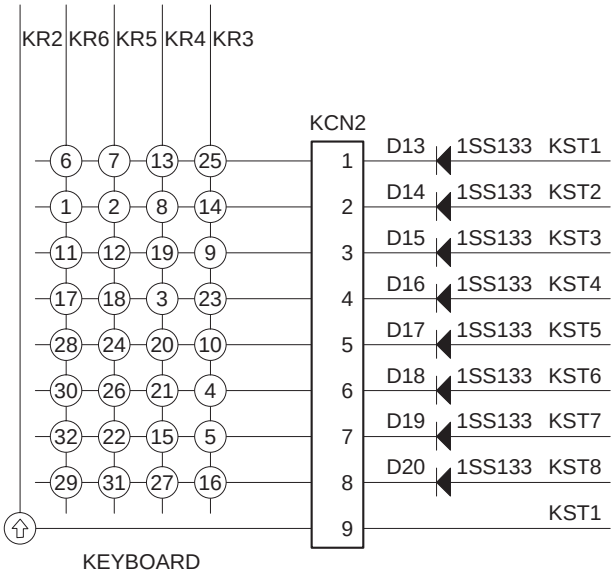
26	1	2
8	9	10
17	18	19
	27	28

3	4
11	12
	21
	30

5	6
13	14
	32



MODE SW



KEYBOARD

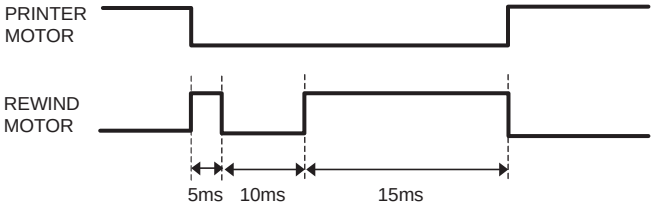
3) BUZZER

The BUZZER is driven by the P75/BUZ signal of the CPU.

Frequency : 4.095kHz

4) REWIND MOTOR

When the rewind motor is driven by the signal of the CPU.



5) DRAWER

DRAWER OPEN signal :Output high signal between 50ms

6) DETECTING "LOW VOLTAGE"

- Values obtained by AD conversion and averaging

Register value: 138 (≒ 2.7V) or less → No voltage
139 - 154 (≒ 2.7V - 3.0V) → Low voltage
more than 154 → OK

7) DESTINATION DETECTION PORT

	U and V version
P66	L

4. CPU PORT TABLE

No.	PIN Name	Signal Name	Description	Output/Input	Initial state	When STBY
1	**P50**/A8	RWND	REWIND MOTOR	O	L	O/L
2	**P51**/A9	DR	To DRAWER	O	L	O/L
3	**P52**/A10	SA2	DISPLAY SEGMENT	O	L	O/L
4	**P53**/A11	SB2	DISPLAY SEGMENT	O	L	O/L
5	**P54**/A12	SC2	DISPLAY SEGMENT	O	L	O/L
6	**P55**/A13	SD2	DISPLAY SEGMENT	O	L	O/L
7	**P56**/A14	SE2	DISPLAY SEGMENT	O	L	O/L
8	**P57**/A15	SF2	DISPLAY SEGMENT	O	L	O/L
9	**Vss0**	GND				
10	**Vdd0**	VDD				
11	**P30**	ST1-	DISPLAY STROBE N-Ch O.D.	O	H	I
12	**P31**	ST2-	DISPLAY STROBE N-Ch O.D.	O	H	I
13	**P32**	ST3-	DISPLAY STROBE N-Ch O.D.	O	H	I
14	**P33**	ST4-	DISPLAY STROBE N-Ch O.D.	O	H	I
15	**P34**/SI31	ST5	DISPLAY STROBE (H ACTIVE)	O	L	O/L
16	**P35**/SO31	NU	(GND via 56k)	I		I
17	**P36**/SCK31-	NU	(GND via 56k)	I		I
18	**P20**/SI30	SA1	DISPLAY SEGMENT	O	L	O/L
19	**P21**/SO30	SB1	DISPLAY SEGMENT	O	L	O/L
20	**P22**/SCK30-	SC1	DISPLAY SEGMENT	O	L	O/L
21	**P23**/RXD0	SD1	DISPLAY SEGMENT	O	L	O/L
22	**P24**/TXD0	SE1	DISPLAY SEGMENT	O	L	O/L
23	**P25**/ASCK0	SF1	DISPLAY SEGMENT	O	L	O/L
24	**Vdd1**	VDD				
25	**Avss**	GND				
26	P17/**ANI7**	VBAT	BATTERY voltage	I		I
27	**P16**/ANI6	NU	RESERVE FOR KEY RETURN	I		I
28	**P15**/ANI5	KR6	KEY RETURN	I		I
29	**P14**/ANI4	KR5	KEY RETURN	I		I
30	**P13**/ANI3	KR4	KEY RETURN	I		I
31	**P12**/ANI2	KR3	KEY RETURN	I		I
32	**P11**/ANI1	KR2	KEY RETURN	I		I
33	**P10**/ANI0	KR1	KEY RETURN	I		I
34	**Avref**	VCC				
35	**Avdd**	VDD				
36	**RESET-**	RESET-				
37	**XT2**	XT2	32.768Khz Xtal			
38	**XT1**	XT1	32.768Khz Xtal			
39	**IC/VPP**	GND				
40	**X2**	X2	SYSTEM CLOCK			
41	**X1**	X1	SYSTEM CLOCK			
42	**Vss1**	GND				
43	P00/**INTP0**	/POF	POWER OFF	I		I
44	P01/**INTP1**	T	From PRINTER	I		I
45	P02/**INTP2**	t	From PRINTER	I		I
46	**P03**/INTP3/ADTRG	R	From PRINTER	I		I
47	**P70**/TI00/TO0	SG1	DISPLAY SEGMENT	O	L	O/L
48	**P71**/TI01	SDP1	DISPLAY SEGMENT	O	L	O/L
49	**P72**/TI50/TO50	SG2	DISPLAY SEGMENT	O	L	O/L
50	**P73**/TI51/TO51	SDP2	DISPLAY SEGMENT	O	L	O/L
51	**P74**/PCL	NU		O	L	O/L
52	P75/**BUZ**	BUZ	BUZZER	O	L	O/L
53	**P64**/RD-	MTR	To PRINTER	O	L	O/L
54	**P65**/WR-	TRG	To PRINTER	O	L	O/L
55	**P66**/WAIT-	MSL1	MODEL SELECT1	I		I
56	**P67**/ASTB	MSL2	MODEL SELECT2	I		I
57	**P40**/AD0	KST1	KEY STROBE	O	L	O/L
58	**P41**/AD1	KST2	KEY STROBE	O	L	O/L
59	**P42**/AD2	KST3	KEY STROBE	O	L	O/L
60	**P43**/AD3	KST4	KEY STROBE	O	L	O/L
61	**P44**/AD4	KST5	KEY STROBE	O	L	O/L
62	**P45**/AD5	KST6	KEY STROBE	O	L	O/L
63	**P46**/AD6	KST7	KEY STROBE	O	L	O/L
64	**P47**/AD7	KST8	KEY STROBE	O	L	O/L

CHAPTER 5. TEST FUNCTION

1) To execute the diag test, set the mode switch to Z/PGM. Enter the desired JOB code, and press the PO (paid out) key.
2) The test message is printed by the printer.
3) Test contents and key operations.

NO.	Test contents	Key operations
1	Mode switch test	1 → [PO]
2	Key test	2 → [PO]
3	Display buzzer test	3 → [PO]
4	Drawer test	4 → [PO]
5	Printer test	5 → [PO]
6	CPU version NO. print	6 → [PO]
7	Battery level test	7 → [PO]
8	Time display test	8 → [PO]
9	Destination display	9 → [PO]

1. MODE SWITCH TEST

1) KEY OPERATION

1 ⟶ PO

2) TEST PROCEDURE

Change over the mode switch as follows. If the mode switch data in the proper sequence is not read with the above operation, an error is printed.
To cancel this test mode, set the mode switch to any a position other than Z/PGM to Z/PGM. In this case, the completion print is performed.
During the test , the display indicates hard codes which correspond to the switch positions.

3) MODE SWITCH OPERATION

Mode: Z/PGM ⟶ X/FLASH ⟶ REG ⟶ OFF ⟶ VOID

Display: (04) (03) (02) (01)

Completion print 01

Error print - - - 01

2. KEY TEST

1) KEY OPERATION

2 ⟶ PO

2) TEST PROCEDURE

Perform the keyboard check with the sum check data of the key code. Enter the sum check data of each model in the four digits preceding the diag number 02, and compare the data with the key position code which is added until the CA/AT/NS key is pressed.
If the data coincides with the code, the completion print is performed.
If not, the error print is performed.

Completion print 02

Error print - - -02

XXXX Sum data

3. DISPLAY BUZZER TEST

1) KEY OPERATION

3 ⟶ PO

2) TEST PROCEDURE

Check the continuous buzzer sound and the display state.

Display state:
8. 7. 6. 5. 4. 3. 2. 1.

The decimal point will shift from the lower digit to the upper, step by step (500mSEC). To cancel the test mode, press any key, and the buzzer will stop and the completion print is performed.

Completion print 03

4. DRAWER TEST

1) KEY OPERATION

4 ⟶ PO

2) TEST PROCEDURE

The drawer opens with the above key operation. Check that the drawer is open. Press any key to terminate the test.

Completion print 04

5. PRINTER TEST

1) KEY OPERATION

5 ⟶ PO

2) TEST PROCEDURE

With the above key operation , the print test pattern is repeatedly printed.
Pressing any key will terminate the test after the completion of one cycle print. (The receipt is issued at the end.)

```
                    0 0 0 X
                    1 1 1 Z
                    2 2 2 RA
                    3 3 3 PO
                    4 4 4 VD
                    5 5 5 %
                    6 6 6 @
                    7 7 7 ST
                    8 8 8 TX
                    9 9 9 CA

                    − − − CH
                    . . . CK
                    # # # CG
# ・ −  9 8 7 6 5 4 3 2 X
0 1 2 3 4 5 6 7 8 9  − CG
```

```
                    0 0 0 X
                    1 1 1 Z
                    2 2 2 RA
                    3 3 3 PO
                    4 4 4 VD
                    5 5 5 %
                    6 6 6 @
                    7 7 7 ST
                    8 8 8 TX
                    9 9 9 CA

                    − − − CH
                    . . . CK
                    € € € CG
€ ・ −  9 8 7 6 5 4 3 2 X
0 1 2 3 4 5 6 7 8 9  − CG
```

6. CPU VERSION NO. PRINT

1) KEY OPERATION

6 ⟶ PO

2) DESCRIPTION

The CPU version No. are printed with above key operation.

(Print example)

0102 CPU version NO.
06

This test is terminated when printing is completed.

7. BATTERY VOLTAGE SENSOR TEST

1) KEY OPERATION

7 ⟶ PO

2) TEST PROCEDURE

Displays A/D conversion port read value.

0155 or greater : Normal

0154 or smaller : Low battery display

0138 or smaller : No battery display and MRS is done when power on.

To terminate the test, press any key.

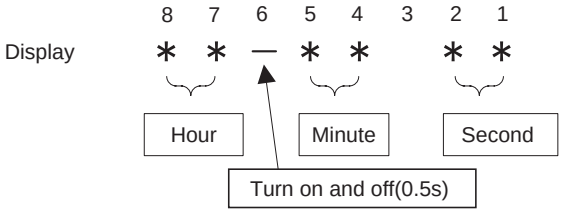
Completion print 07

8. TIME DISPLAY TEST

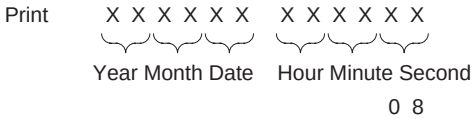
1) KEY OPERATION

8 ⟶ PO

2) TEST PROCEDURE



To terminate the test and print the date and time, press any key.



0 8

9. DESTINATION DISPLAY

1) KEY OPERATION

9 ⟶ PO

2)TEST PROCEDURE

Display the destination code as follows.

	U and A version	V version	Japan
Display	0	1	3

Display X (X:0)

To terminate the test, press any key.

Completion print 09

CHAPTER 6. SERVICE PRECAUTION

1. PRINTER

Since there are no service parts for this model printer, only the printer unit is supplied. Therefore, the printer component parts are not supplied and no service document is issued.
For troubleshooting of the printer, refer to the table below:

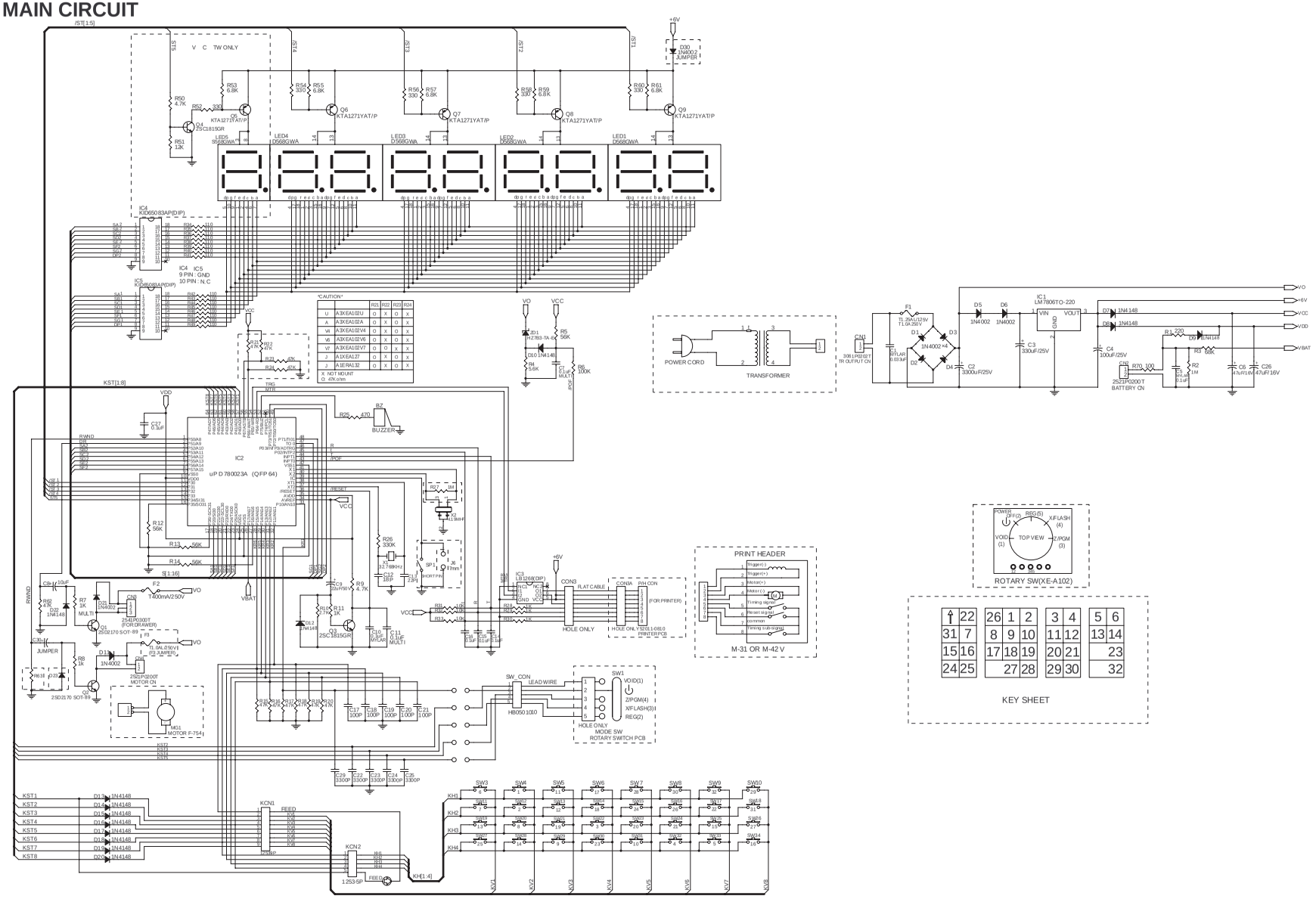
∗Printer life: 300 thousand lines (XE-A102: M-31)
Ink roll life: 1 million characters

Phenomena	Check point/possible cause	Repair
• The printer motor is locked and the buzzer sounds intermittently. • The printer does not work properly	• Check if the printer cable is disconnected.	• Check and repair the printer cable.
	• Check if the printer life is reached.	• Replace the printer.
	• Check if any foreign material is attached to the printing type wheel or the gear section.	• Remove the foreign material. (After removing the foreign material, set the mode switch to "REG" and press "CL" key.)
• Defective print (Lack on the upper/ lower or left/right side)	• Check if the printing type is worn down.	• Replace the printer.
	• Check if any foreign material is attached to the printing type wheel.	• Remove the foreign material. (After removing the foreign material, set the mode switch to "REG" and press "CL" key.)
• Thin print	• Check if the ink roll life is reached.	• Replace the ink roll.
	• Check if the ink roll is properly installed.	• Install the ink roll properly.
	• Check if the printing type wheel is worn down.	• Replace the printer.
• Uneven pitch of print paper feed	• Check if the roll paper size is proper.	• Use roll paper as specified below; Paper width : 57.5 ±0.5mm Outside diameter : φ80mm or less Inside diameter of paper tube: φ12mm or less Paper thickness : 0.06~0.085mm
	• Check if a load is applied to the roll paper during paper feeding. This may result from a foreign materials attached to the roll paper.	• Remove any foreign material.

CHAPTER 7. CIRCUIT DIAGRAM AND PWB LAYOUT

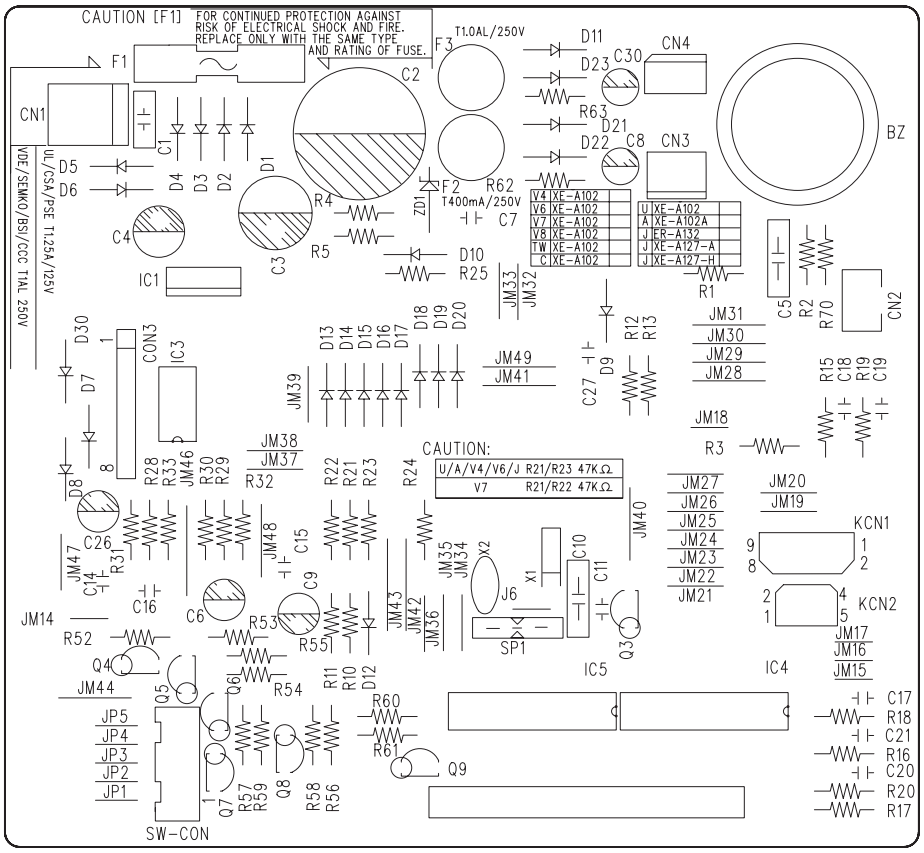
1. CIRCUIT

MAIN CIRCUIT

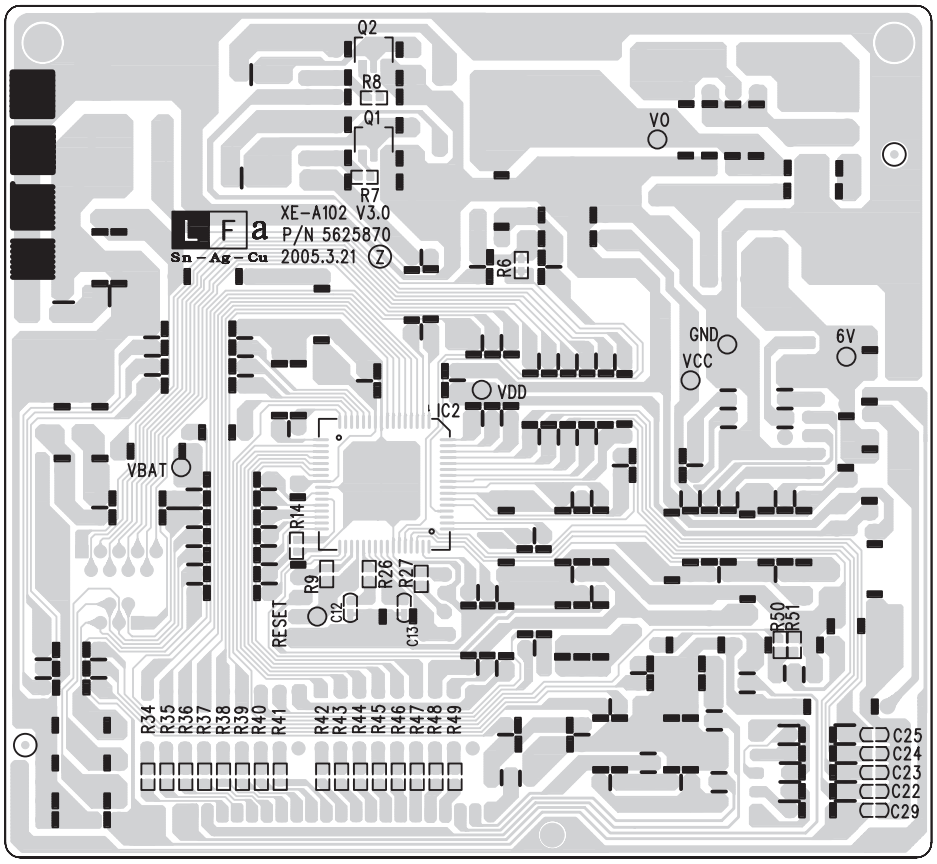


2. PWB LAYOUT

A side

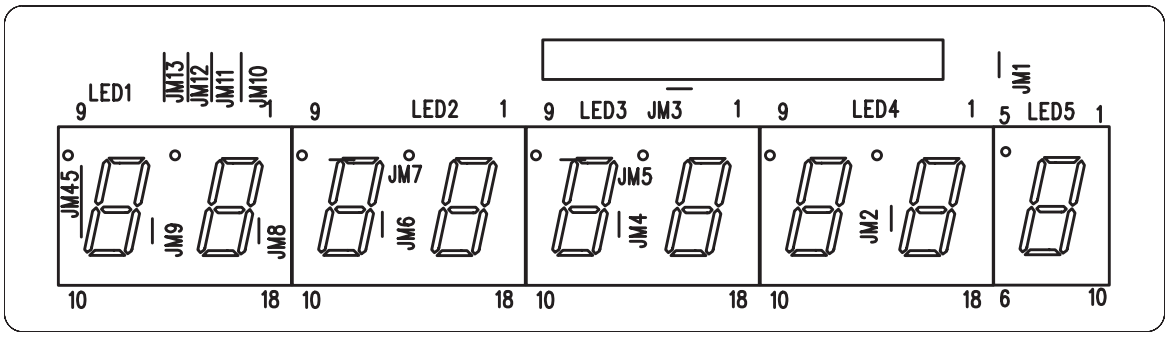

CAUTION [F1] FOR CONTINUED PROTECTION AGAINST RISK OF ELECTRICAL SHOCK AND FIRE. REPLACE ONLY WITH THE SAME TYPE AND RATING OF FUSE.
T1.0AL/250V
T400mA/250V
CAUTION:
U/A/V4/V6/J R21/R23 47KΩ
V7 R21/R22 47KΩ
SW-CON

B side

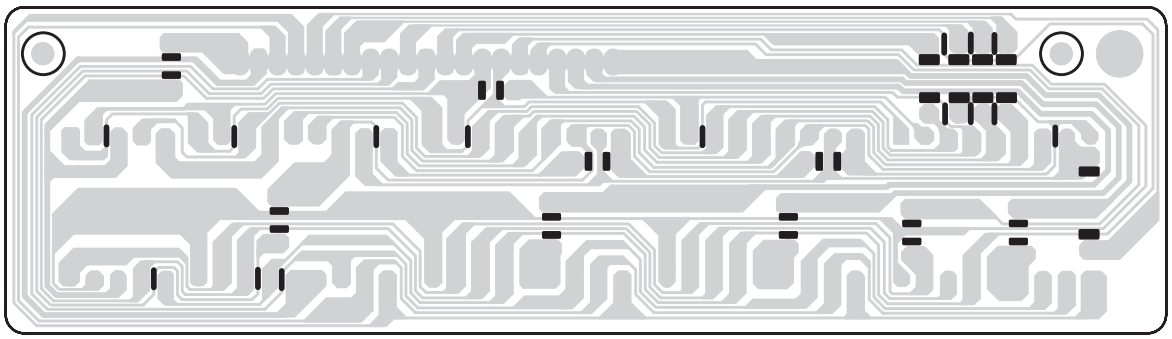


3. DISPLAY LAYOUT

A side



B side



SHARP

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